CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER 99-086

WASTE DISCHARGE REQUIREMENTS FOR:

LAWRENCE LIVERMORE NATIONAL LABORATORY, 5-YEAR MAINTENANCE PLAN AND SITE MANAGEMENT PLAN FOR WATERS OF THE UNITED STATES, LIVERMORE, ALAMEDA COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region, hereinafter Board, finds that:

1. Lawrence Livermore National Laboratory (hereinafter Discharger) proposes to implement a 5-year maintenance plan (plan) for Arroyo las Positas where the Arroyo flows across the Discharger's site. The plan would be comprised of the following components: phased desilting of a 7,000 linear foot reach of the Arroyo over 5 years; constructing, on upland immediately adjacent to one side of the Arroyo, an earthen berm and/or retaining wall; managing vegetation in and adjacent to the Arroyo, including mowing grass on the banks and upper side slopes and trimming cattail heights; and conducting bank stabilization/erosion control activities.

2. The plan's objective is to provide an adequate level of protection from flood flows for LLNL's facilities. This would be accomplished by implementation of the plan, which will establish and maintain a 10-year flow capacity in the channel.

3. This Order allows implementation of the plan over a 5-year period, beginning with the adoption of this Order, on the specified reach of Arroyo Las Positas.

4. The Order requires the Discharger to submit an acceptable overall management plan for waters of the United States on the lab site, which in addition to Arroyo Las Positas, consist largely of a reach of Arroyo Seco. Therefore, following submittal of an acceptable management plan, this Order will allow maintenance work on both Arroyo Las Positas and the other waters located on the Discharger's site. Over the past five years, the Discharger has performed a series of bank stabilization and vegetation management projects on waters of the United States at its facility. These have included the following types of projects, which would be incorporated into the overall management plan:
    a) Removal of storm-generated debris;
    b) Repair of culvert footings;
    c) Bank stabilization with rock-filled gabions;
    d) Installation of rock rip-rap along creek beds;
    e) Vegetation management activities;
    f) Erosion repair and prevention using erosion control blankets and seeding; and,

g) The placement of fill in eroded sections of channel bed and banks.

5. To protect the water quality at and in the vicinity of the desilting site, to adequately address disposal of excavated sediment, to meet the objectives of California Wetland Conservation Policy, to alleviate local flooding problems, and to address public safety concerns in an environmentally responsible way, the Board has determined to regulate the proposed activities by issuance of Waste Discharge Requirements (WDRs).

6. The Board, on June 21, 1995, adopted, in accordance with Section 13240 et. seq. of the California Water Code, a revised Water Quality Control Plan, San Francisco Bay Basin (Basin Plan). This updated and consolidated revised Basin Plan was approved by the State Water Resources Control Board and the Office of Administrative Law on July 20, 1995, and November 13, 1995, respectively. A summary of regulatory provisions is contained in 23 CCR 3912. The Basin Plan defines beneficial uses and water quality objectives for waters of the State, including surface waters and groundwaters. This order is in compliance with the Basin Plan.

   The subject wetlands and other waters are located within the South Bay Basin and are tributary to the Arroyo de la Laguna and Alameda Creek, which have the following existing and/or potential beneficial uses defined in the Basin Plan: agricultural supply, cold freshwater habitat; ground water recharge; fish migration; water contact recreation; non-contact water recreation; fish spawning; warm freshwater habitat; and wildlife habitat. Additionally, the subject waters are known to provide habitat for rare, threatened, and/or endangered species.

7. The wetlands to be temporarily impacted are Waters of the State and of the United States. There are approximately 2.134 acres of waters of the United States within the project reach of the Arroyo Las Positas. The project would impact approximately 0.38 acres of wetlands annually for five years. Each year, another 0.38 acres of wetlands will be in its second year of regrowth.

8. The Discharger has submitted documentation to show that appropriate effort was made to avoid and then to minimize wetland disturbance, as required by the Basin Plan. The Board agrees with this finding.

9. The Discharger has proposed a conceptual mitigation package as a part of its proposal, to offset the loss of beneficial uses of waters of the State. The Board agrees to the proposed conceptual mitigation package.

10. The conceptual mitigation package is comprised of the following elements: a Maintenance Impact Study for the impacted reach of Arroyo Las Positas; the development and implementation of an interim best management practice (hereinafter BMP) plan for minor maintenance projects in waters of the United States at the Discharger's facility; the development and implementation of a long-range management plan for waters of the United States on the site, including the Arroyo Las Positas and the Arroyo Seco, which is focused on improving water quality and beneficial uses of waters

of the State; and the payment to the United States Fish and Wildlife Service (USFWS) of $170,000, with which the USFWS intends to protect and enhance approximately 17 acres of California red-legged frog (CRLF) habitat, including wetlands, in the vicinity of the project site.

11. The Discharger routinely evaluates soil for constituents of concern including organic, metallic, and radioactive parameters and practices waste minimization by beneficially reusing soil determined not to be a threat the the quality of waters of the State. Sediment excavated from the Arroyo will be evaluated and reused or disposed of as described in the Discharger's report: "LLNL Report of Waste Discharge for Beneficial Reuse of Soil at the Livermore Site," UCRL-AR-126943, authored by Karen Folks of the Discharger's staff.

12. The California Environmental Quality Act (CEQA) requires all projects approved by State agencies to be in full compliance with CEQA, and requires a lead agency to prepare an appropriate environmental document (e.g., Environmental Impact Report or Negative Declaration) for such projects. On October 11, 1999, the University of California certified a Mitigated Negative Declaration (State Clearinghouse Number 99082094) for the subject project. The Board has considered this Mitigated Negative Declaration. The Mitigated Negative Declaration identified several potentially significant environmental impacts associated with the proposed project and associated mitigation measures. Impacts include potential impacts to, including take of, the CRLF and the potential for discharge of pollutants such as sediment into waters of the State. This Order requires the Discharger to implement appropriate measures to ensure that such potential impacts are adequately mitigated.

13. Pursuant to Title 23, California Code of Regulations Section 3857, the Board is issuing WDRs and will not act on this application for Water Quality Certification.

14. The Board has notified the Discharger and interested agencies and persons of its intent to prescribe WDRs for this discharge.

15. The Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED that Lawrence Livermore National Laboratory, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, shall comply with the following:

A. Discharge Prohibitions

1. The direct discharge of wastes (including excavated sediment) from active desilting sites to surface waters or surface water drainage courses is prohibited.

2. The dredge and disposal activities subject to these requirements shall not cause a nuisance as defined in Section 13050(m) of the California Water Code.

3. The discharge of decant water from active desilting sites and dredged material stockpile or storage areas to surface waters or surface water drainage courses is prohibited.

B. Receiving Water Limitations

1. The desilting activities shall not cause:

   a. Floating, suspended or deposited macroscopic particulate matter or foam in waters of the State at any place more than 50 feet from the point of discharge of diverted flow.

   b. Alteration of apparent color beyond present natural background levels in waters of the State at any place more than 50 feet from the point of discharge of diverted flow.

   c. Visible floating, suspended, or deposited oil or other products of petroleum origin in waters of the State at any place more than 50 feet from the point of discharge of diverted flow.

   d. The diverted flow shall not cause Waters of the State to exceed the following quality limits at any place more than 50 feet from the point of discharge of diverted flow:

      i) Dissolved Oxygen: 5.0 mg/l minimum. When natural factors cause lesser concentrations, then this discharge shall not cause further reduction in the concentration of dissolved oxygen.

      ii) pH: A variation of natural ambient pH by more than 0.5 pH units.

      iii) Toxic or other deleterious substances: None shall be present in concentrations or quantities which may cause deleterious effects on aquatic biota, wildlife or waterfowl, or which render any of these unfit for human consumption either at levels created in the receiving waters or as a result of biological concentrations.

2. Turbidity of the waters of the State, as measured in NTUs, at any point beyond 50 feet downstream of the point of discharge of diverted flow shall not increase above background levels by more than the following:

Receiving Waters Background	Incremental Increase
≥ 50 units	10% of background, maximum

3. The groundwater shall not be degraded as a result of the sediment disposal and handling operation.

C. Provisions

1. The Discharger shall comply with all the Prohibitions, Receiving Water Limitations, and Provisions of this Order immediately upon adoption of this Order or as provided below.

2. No later than 21 days prior to the beginning of removal of sediment from the Arroyo, the Discharger shall submit a report, acceptable to the Executive Officer, comprised of the results of the soil evaluation of the sediment proposed for removal and planned disposition of that sediment.

3. The Discharger shall divert any flow at the site around the active desilting site(s) using a low flow channel, pipe, or other practices such that the flow does not flow across the active desilting site(s) and no equipment operates in areas of flowing or standing water.

4. No later than 30 days prior to the start of the desilting activity, the Discharge shall submit a Water Diversion, Sediment Transport, and Desilting BMP plan, acceptable to the Executive Officer. The plan many be amended with the written approval of the Executive Officer. The plan shall include:

   a. Details on how the water will be diverted around the active desilting area and how this area will be dewatered should there be flow or standing water;
   b. Practices to be implemented to prevent the discharge of liquid from the sediment transport vehicles;
   c. Practices to be implemented that will minimize impacts to the beneficial uses of waters of the State during the course of the desilting component of the project; and,
   d. Practices to be implemented that will minimize impacts to the portion of the channel that will not be desilted in each year of the project.

5. The Discharger shall comply with all applicable items of the Self-Monitoring Program (SMP).

6. The Discharger shall file with the Board self-monitoring reports performed according to any SMP issued by the Executive Officer or approved by this Order.

7. All reports pursuant to these Provisions shall be prepared under the supervision of an appropriately qualified person or persons.

8. The discharge of any hazardous, designated or non-hazardous waste as defined in Title 27, Division 2, Subdivision 1, Chapter 2 of the California Code of Regulations shall be conducted in accordance with applicable state and federal regulations.

9. The Discharger shall remove and relocate any wastes which are discharged at any sites in violation of this Order.

10. The Discharger shall file with the Board a report of any material change or proposed change in the character, location, or quantity of this waste discharge.

11. The Discharger shall ultimately dispose of excavated sediment desilted under this Order at a permitted landfill, upland silt disposal site permitted by the Board, or otherwise at a site approved in advance by the Executive Officer.

12. The Discharger shall maintain a copy of this Order at the project site so as to be available at all times to site operating personnel.

13. The Discharger is considered to have full responsibility for correcting any and all problems which arise in the event of a failure to meet the requirements of this Order and which results in an unauthorized release of waste or wastewater.

14. The Discharger shall permit the Board or its authorized representative, upon presentation of credentials:

    a. Entry on to the premises on which wastes are located or in which records are kept.

    b. Access to copy any records required to be kept under the terms and conditions of this Order.

    c. Inspection of any treatment equipment, monitoring equipment. or monitoring method required by this Order.

    d. Sampling of any discharge or surface water covered by this Order.

15. No later than January 30, 2001, the Discharger shall prepare and submit a development plan, acceptable to the Executive Officer, for the final Management Plan for Waters of the United States (Management Plan) on the Discharger's site. The development plan shall include the conceptual goals of the management plan, identify the study or studies necessary to develop the management plan and include a time schedule to complete the necessary studies and prepare the Management Plan.

16. No later than January 30, 2002, the Discharger shall submit the final Management Plan referenced in Provision 15, acceptable to the Executive Officer. Upon approval of the Management Plan by the Executive Officer, the Discharger shall be permitted to perform activities listed in the plan for which appropriate best management practices (hereinafter BMPs) to minimize impacts to beneficial uses of waters of the State, reporting requirements, and other standards, as appropriate, have been developed. These activities shall be comprised of: habitat enhancement activities and the types of erosion control and vegetation management activities identified in Finding 4, or activities determined to be substantially similar. It may be appropriate for the BMPs, reporting requirements, and

other management measures to be substantially the same as those required for the Interim BMP Plan required below in the Provisions.

17. The Management Plan shall include, among its other components: an analysis and standards for the appropriate use of biotechnical channel stabilization methods, rather than hard methods, to control erosion and bank instability and protect instream structures; and an analysis of the contributions of sediment to the waters of the United States from off-site tributaries and the Discharger's storm drainage system. The Management Plan shall also include a proposal for a stable channel design for Arroyo Seco which maximizes beneficial uses in the channel, including habitat functions and values.

18. Prior to the submittal of the Management Plan, the Discharger will be permitted to perform interim erosion control and vegetation management activities of the types identified in Finding 4, or activities determined by the Executive Officer to be substantially similar, provided the Discharger submits the report required in (a), below. Prior to the approval by the Executive Officer, by letter, of such a plan, the Discharger must continue to apply, as appropriate, for separate permits for all work in or potentially impacting waters of the State. Following the approval, by letter, by the Executive Officer of the Interim BMP Plan, the Interim BMP Plan shall remain valid until the approval by the Executive Officer of the Management Plan, but not later than January 30, 2002.

    a. Submit an Interim BMP Plan, acceptable to the Executive Officer, listing the proposed activities, BMPs to avoid and minimize those activities' impacts to beneficial uses of waters of the State, and a reporting schedule to report all such activities to be completed under such a plan.

19. The Discharger shall submit a Final Plan, acceptable to the Executive Officer, for the Maintenance Impact Study (Study) no later than June 1, 2000. The Plan shall include a detailed description of the proposed annual monitoring, including: assessments of red-legged frog presence and distribution; macroinvertebrate species richness; and vegetation colonization and establishment. At a minimum, the plan shall include provisions for:

    a. California Red-legged Frog monitoring, including seasonal nocturnal surveys;
    b. Macroinvertebrate monitoring, including pre- and post-activity sampling in each of the areas desilted and in a reference location; and,
    c. Wetland vegetation establishment, including a comparison of annual growth and species diversity.

20. The Discharger shall implement the Final Plan for the Habitat Return and Channel Study and submit the Final Study, acceptable to the Executive Officer, no later than January 15, 2006.

21. The Discharger shall contact the USFWS annually to determine the status of the CRLF mitigation fee that the Discharger has forwarded to the Center for Natural Lands Management as partial mitigation for project-related potential impacts to CRLF and

wetland vegetation in Arroyo Las Positas. The Discharger shall provide to the Board a copy of all status reports it receives from the USFWS.

22. Any substantive changes to the Final Mitigation and Monitoring Plan and/or the Final Plan for the Habitat Return and Channel Study described herein must be approved in writing by the Executive Officer.

23. These Requirements do not authorize commission of any act causing injury to the property of another or of the public; do not convey any property rights; do not remove liability under federal, state or local laws, regulations or rules of other programs and agencies nor do these Requirements authorize the discharge of wastes without appropriate permits from other agencies or organizations.

24. The Discharger shall obtain all the necessary approvals and/or permits for the project from the applicable government agencies, including the state Department of Fish and Game, U.S. Fish and Wildlife Service, and Corps, and shall submit them to the Board prior to the start of desilting.

25. The Board may continue this Order for further 5-year terms. Any request to do so by the Discharger shall be accompanied by the analysis and incorporation of changes in the maintenance plan required by the Provisions of this Order.

I, Lawrence P. Kolb, Acting Executive Officer, do hereby certify that the foregoing is a full, complete and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on October 20, 1999.

Dr. Lawrence P. Kolb
Acting Executive Officer

Attachments:
A: Self-Monitoring Program (SMP)

CALIFORNIA REGIONAL WATER QUALITY CONTROL PLAN
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM

FOR ORDER 99-086

Lawrence Livermore National Laboratory, 5-year Maintenance Plan

I. General

A. Basis

Reporting responsibilities of the Project Proponent as "waste discharger" are specified in Sections 13225(a), 13267(b), 13268, 13383, 13387(b) of the California Water Code and this Regional Board's Resolution No. 73-16.

B. Purpose

The principal purposes of a monitoring program by a discharger, also referred to as a Self-Monitoring Program, are to document compliance with effluent requirements and prohibitions established by this Board; facilitate self-policing by the discharger in the prevention and abatement of pollution arising from improper effluent; to develop or assist in the development of effluent or other limitations, discharge prohibitions, national standards of performance, pretreatment and toxicity standards, and other standards; and to prepare water and wastewater quality inventories.

C. Sampling and Methods

Sample collection, storage and analysis shall be performed according to 40 CFR, Section 136, or other methods approved by the Executive Officer.

Water analyses conducted on samples collected for laboratory analysis shall be performed by a laboratory approved by the Department of Health Services (DHS) or a laboratory approved by the Executive Officer.

All monitoring instruments and equipment, including instruments and equipment used in field sampling and analysis, shall be properly calibrated and maintained to ensure accuracy of measurements.

Routine sampling shall follow Quality Assurance/ Quality Control procedures including the use of field, equipment and laboratory blanks and laboratory surrogate samples.

All Quality Assurance/Quality Control measures and results shall be reported along with the data.

II. DEFINITION OF TERMS

Grab Sample is defined as an individual sample collected in a short period of time not exceeding 15 minutes. They are to be used primarily in determining compliance with receiving water limits. Grab samples only represent the condition that exists at the time the water and effluent are collected.

n feet from the point of discharge is defined as *n* feet (e.g., 50 feet) downstream of the point at which water diverted around the desilting site is discharged into a water of the State.

Active Site is defined as that portion of a channel or stream on which desilting is being conducted and/or that may be subject to surface water flow during desilting.

Duly Authorized Representative is one whose:

a. authorization is made in writing by a principal executive officer, or

b. authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity (e.g; field supervisor, project manager, chief engineer).

III. SPECIFICATIONS FOR SAMPLING AND ANALYSES

The Discharger is required to perform sampling and analyses as found in accordance with the following conditions and requirements:

A. Receiving Waters

1. Sampling, as described below, is not required when there is no flowing or standing water in the creek(s), there is no discharge of ground water during desilting, and there is no diverted water discharge.

2. Diverted water discharge sampling shall be conducted at the Active Sites during desilting, on occasions when a diverted water discharge occurs. The first sampling event shall be conducted on the first day of the project.

3. Prior to the start of desilting, background water samples shall be collected no more than 50 feet from the point of discharge (e.g., on Arroyo Las Positas within 50 feet below the downstream discharge point). Samples must be representative of typical undisturbed

conditions, and must not be taken during a rainstorm or subsequent runoff event. In addition, the Discharger may collect background samples on a daily basis a minimum of 500 feet upstream of the Active Site. Background data generated by analysis of samples collected daily will be valid for discharge occuring in the same day.

These samples shall be analyzed for the following constituents:

Constituents	Type of sample	Units
Turbidity	Grab	NTUs
pH	Grab	Not Applicable
Dissolved Oxygen	Grab	mg/l

4. Receiving water samples shall be collected at the Active Sites, at least two samples within every 24-hour period, evenly spaced during the work hours, with the first set of samples no earlier than 1 hour after desilting has commenced each day on days when water is present in the channel or there is a discharge of diverted flow. The location of each sampling site is no more than 50 feet from the point of discharge. These samples shall be immediately analyzed on site for the following constituents:

Constituents	Type of sample	Units
Turbidity	Grab	NTUs
pH	Grab	Not Applicable
Dissolved Oxygen	Grab	mg/l

5. Duplicate samples shall be collected a minimum of once per week, with one set of samples for the constituents specified in item 4 analyzed on site and one set of samples sent to a laboratory for analysis of the same constituents analyzed for on site.

6. If analytical results for constituents analyzed on-site show that any grab sample exceeds any receiving water limit, confirmation samples shall be taken within 2 hours and every subsequent two hours, and analyzed for all constituents for which on-site analysis is required. Sampling at this higher frequency shall continue until the exceedance has been corrected.

7. If any receiving water limit for a constituent or constituents is exceeded, then the Discharger shall follow the following process to address the exceedance:

   a. Identify source of exceedance;

b. Correct source of exceedance; and,

c. Resample to determine whether exceedance has been corrected.

8. If any receiving water limit for a constituent or constituents is exceeded for a 12-hour period, then the Discharger shall immediately notify the Board by telephone and telefax of the exceedance and of how it is correcting or will correct the exceedance.

9. If any receiving water limit for a constituent or constituents is exceeded for a 24-hour period, then a violation shall have occurred and the desilting shall be terminated until the cause of the violation is found and sampling demonstrates that the exceedance has been corrected or when the Discharger has provided the Board with a corrective action plan, acceptable to the Executive Officer, that provides alternative methods of compliance.

10. For other violations, the Discharger shall notify the Board immediately whenever violations are detected and discharge shall not resume until the Discharger has provided the Board with a corrective action plan, acceptable to the Executive Officer, that provides alternative methods of compliance.

B. Standard Observations

The following observations shall be recorded on every day of operation when water is present in the channel or there is a discharge of diverted flow:

1. Receiving Water:

a. Floating and suspended materials of waste origin (to include oil, grease, algae, and other macroscopic particulate matter): presence or absence, source and size of affected area.

b. Discoloration and turbidity: description of color, source and size of affected area.

c. Odor: presence or absence, characterization, source, distance of travel and wind direction.

d. Hydrographic condition including: depth of water columns and sampling depths.

e. Weather condition including: air temperatures, approximate wind direction and velocity and precipitation.

2. Decant Water:

a. No decant water discharge from Active Sites or desilt material stockpile sites to any drainage is permitted.

3. Progress and location of active desilting and control measures, noted on a map of the site.

C. Records to be Maintained

1. Written reports, strip charts, calibration and maintenance records, and other records shall be maintained by the Discharger and accessible at reasonable times. Records shall be kept for a minimum of three years. Records shall include notes and observations for each sample as follows:

    a. Identity of each sampling and observation station by number

    b. Date and time of sampling

    c. Date and time analyses are started and completed and the name of person conducting analyses

    d. Complete procedure used, including method of preserving or analyzing sample and identity and volumes or reagents used. A reference to a specific section of Standard Methods is satisfactory.

    e. Calculations of results.

    f. Results of analyses and/or observations, including a comparison of the laboratory and field results for duplicate samples.

2. Records shall include a map or maps of the site showing the location of sediment sampling locations, coffer dams, discharge pipes, access ramps, etc.

3. If any receiving water limit for a constituent or constituents is exceeded, or if the Discharger otherwise violates any applicable water quality limits, then the Discharger shall maintain a tabulation showing the following flow data:

    a. Total flow or volume on a daily basis for each effluent station in exceedance, or for all discharge from the project site, if the exceedance is not specific to a particular effluent station or stations.

IV. REPORTS TO BE FILED WITH THE REGIONAL BOARD

A. Report of Permit Violations

In the event that this permit is violated, the Discharger shall notify the Board by telephone immediately and shall notify the Board in writing within thirty calendar days. A written report shall include time and date of incident, duration and estimated volume of discharge or bypass. The report shall include a detailed discussion of the reasons for the non-compliance and what steps were or will be taken to correct the failure and prevent it from occurring again.

B. Self-Monitoring Reports

During desilting, written reports shall be filed for each year in which desilting occurs when there has been an exceedance of the receiving water limits during the permitted project's operations. The reports shall be filed no later than 45 calendar days following the completion of desilting in each year desilting occurs. The reports shall include the following:

a. A transmittal letter which includes identification of changes to the project design and any unplanned releases or failures that have occurred since the last reporting period.

b. A monitoring report which details: the magnitude of the releases or failures; any discharge limit exceedances; dates of all exceedances; cause of the failures, releases or other violations; any corrective actions taken or planned; and the schedule for completion of corrective action.

c. Reports and the letter transmitting reports shall be signed, under penalty of perjury, by a principal executive officer(s) of the Discharger or by a duly authorized representative of that person.

I, Lawrence P. Kolb, Acting Executive Officer, do hereby certify that the foregoing Self--Monitoring Program:

1. Has been developed in accordance with the procedures set forth in this Board's Resolution No. 73-16, in order to obtain data and document compliance with discharge requirements established in Regional Board Order No. 99-086.

2. Was adopted by the Board on October 20, 1999.

3. May be reviewed at any time subsequent to the effective date upon written notice from the Executive Officer or request from the Discharger, and revisions will be ordered by the Executive Officer or Board.

Dr. Lawrence P. Kolb
Acting Executive Officer